

V

Halawa Valley Molokai

STUDY OF ALTERNATIVES

TABLE OF CONTENTS

Page No.

SUMMARY	V-1
DESCRIPTION OF THE STUDY AREA.....	V-3
Location, Size and Ownership	V-3
Land Uses.....	V-12
Regional Context	V-13
Resource Type	V-14
RESOURCE SIGNIFICANCE	V-16
Cultural Resources	V-16
Natural Resources	V-24
Geomorphology and Soils.....	V-24
Marine Resources	V-25
Vegetation	V-25
Wildlife	V-27
Current Status of the Study Area	V-28
Evaluation of Resource Significance	V-28
Cultural Resources	V-28
Natural Resources	V-31
EVALUATION OF SUITABILITY AND FEASIBILITY	V-32
Rarity of This Type of Resource.....	V-32
Feasibility for Addition to the National Park System.....	V-32
Position of the Local Community	V-34
ALTERNATIVES FOR RESOURCE PROTECTION AND MANAGEMENT	V-37
Alternative 1. Establishment of a Local Land Trust.....	V-37
Alternative 2. Establishment of a State Park	V-38
Alternative 3. National Historic Landmark Designation	V-39
Alternative 4. Establishment of a National Heritage Area.....	V-40
Alternative 5. Continuation of Existing Conditions (No Action)	V-41

ENVIRONMENTAL ASSESSMENT	V-42
Alternative 1. Establishment of a Local Land Trust	V-42
Long-Term Resource Protection	V-42
Effects on Existing Land Uses, Land Ownership and the Local Economy	V-43
Quantity and Type of Visitor Use Opportunities	V-43
General and Comparative Consideration of Cost	V-43
Resource Improvement Potential	V-43
Alternative 2. Establishment of a State Park	V-44
Long-Term Resource Protection	V-44
Effects on Existing Land Uses, Land Ownership and the Local Economy	V-44
Quantity and Type of Visitor Use Opportunities	V-45
General and Comparative Consideration of Cost	V-45
Resource Improvement Potential	V-45
Alternative 3. National Historic Landmark Designation	V-46
Long-Term Resource Protection	V-46
Effects on Existing Land Uses, Land Ownership and the Local Economy	V-46
Quantity and Type of Visitor Use Opportunities	V-46
General and Comparative Consideration of Cost	V-46
Resource Improvement Potential	V-46
Alternative 4. Establishment of a National Heritage Area	V-47
Long-Term Resource Protection	V-47
Effects on Existing Land Uses, Land Ownership and the Local Economy	V-47
Quantity and Type of Visitor Use Opportunities	V-48
General and Comparative Consideration of Cost	V-48
Resource Improvement Potential	V-48
Alternative 5. Continuation of Existing Conditions	V-48
Long-Term Resource Protection	V-48
Effects on Existing Land Uses, Land Ownership and the Local Economy	V-48
Quantity and Type of Visitor Use Opportunities	V-49
General and Comparative Consideration of Cost	V-49
Resource Improvement Potential	V-49
FINDINGS	V-50

APPENDIX.....	V-52
Study Area - Ownership, Acreage and Assessed Valuation by <u>Tax Map Key (TMK) Parcel</u>	V-52
Selected References	V-55
Preparers and Consultants.....	V-58
Site Investigation Trip Report.....	V-59

Maps

Figure 1. Location.....	V-5
Figure 2. Halawa Valley Property Owners.....	V-7
Figure 3. Halawa Valley Prehistoric Settlement Patterns.....	V-17
Figure 4. Locations of Hawaiian Religious and Ceremonial Structures in the Halawa Valley.	V-20

SUMMARY

The cultural resources of the Halawa Valley have been found to be of national significance. The archeological sites and features that comprise these resources together comprise nearly all of the components of an ancient Hawaiian community and are the most complete known representation of the facets of the prehistoric Hawaiian culture. The archeology of the Halawa Valley also represents the longest period of continuous Hawaiian cultural development--some 1,350 years.

Although Hawaiian archeological sites and features and different facets of the Hawaiian culture are already represented within existing units of the national park system, the cultural resources found in the Halawa Valley, by themselves, represent a more complete picture of the prehistoric Hawaiian culture. In addition, one of the subthemes and several of the facets represented by cultural resources found in the Halawa Valley are not presently represented in the national park system. Consequently, the study area has also been found to meet the test of suitability.

The Halawa Valley meets most, but not all, of the tests of feasibility. Land acquisition costs are considered feasible. Currently, assessed valuation for the approximately 500 acres of privately-owned land comprising the study area is about \$700,000. Except for a few scattered residences, study area lands remain in open space. The major landowner, the Puu O Hoku Ranch, whose holdings take up about three-quarters of the study area, appears to be interested in some type of preservation designation to ensure the long-term protection of the Hawaiian archeology present on their property. The study area's size, configuration and the existing access all lend themselves to management for visitor use and the protection of cultural and biotic resources.

There are, however, other conditions present which do not contribute to the Halawa Valley's feasibility. There are properties other than Puu O Hoku Ranch present in the valley. Altogether these properties comprise less than 100 acres. These lands are subdivided into many small privately-owned parcels. Several of the property owners here are absentee and some parcels have multiple claimants to ownership. Many of these property owners and tenants living in the valley feel

that the Halawa Valley should remain as it is--rural and undeveloped--and Hawaiian archeological sites preserved. Some of these property owners hold the view, shared by other Molokai residents, that control should remain at the local community level. These views do not contribute to the overall feasibility of the Halawa Valley as a unit of the national park system.

In addition to an evaluation of the Halawa Valley's feasibility as a unit of the national park system, other management alternatives have been identified and evaluated on the basis of their providing long-term protection and public use of the nationally significant resources found there. The management alternatives are: Establishment of a Local Land Trust, Establishment of a State Park, National Historic Landmark Designation and Establishment of a National Heritage Area. A continuation of the existing conditions has also been evaluated as an alternative.

Based on the assessment of the alternatives, this study report finds that direct management by NPS is clearly the superior alternative--that the establishment of a unit of the national park system would provide the most effective long-term protection to the nationally significant cultural resources of the Halawa Valley and provide the greatest opportunities for public use. In addition, this report finds that traditional uses of these nationally significant resources by native Hawaiians is entirely appropriate and could be accommodated if a unit of the national park system were established in the Halawa Valley.

DESCRIPTION OF THE STUDY AREA

Location, Size and Ownership

The Halawa Valley, "its shoreline, cove, and lookout/access roadway" are located on the eastern end of the island of Molokai. Halawa is one of four windward valleys that penetrate the precipitous sea cliffs along that island's north coast. Accessible via a winding two-lane paved road, the scenic valley is spectacularly revealed from turnouts--a sheltered cove, gray sand beach and grasslands bisected by the slow curve of the Halawa Stream, while further up lush greenery covers the valley floor and lower slopes, and at its end two spectacular waterfalls plunge from its rim.

Halawa Valley has been characterized by noted Hawaiian archeologists as the classic example of wetland agricultural adaptation by prehistoric Hawaiians. Perhaps equally noteworthy is that the Halawa Valley represents the longest continual cultural sequence yet documented for the Hawaiian islands--some 1,350 years.

The study area consists of the floor of the valley and its lower slopes up to about the 250-foot (77 meters) elevation line plus the adjacent shoreline and cove, altogether encompassing approximately 500 acres of land and about 20 acres of offshore waters (see Figure 1).

The land portion of the study area is in private ownership, except for the public roads and a single one acre parcel owned by the State of Hawaii. The shoreline and cove waters are also owned by the State of Hawaii. The private lands within the study area have been subdivided into 86 small parcels. Fifteen parcels, totalling more than 400 acres, are owned by the Puu O Hoku Ranch. Ranch properties consist of all of the valley slopes and most of the valley floor. The Puu O Hoku Ranch also owns the land surrounding the study area. Within the study area, four parcels belong to churches. Nearly all of the valley landowners are absentee owners. About two-thirds of the 86 parcels are under one acre in size (see APPENDIX Ownership, Acreage and Assessed Valuation by Tax Map Key [TMK] Parcel).



Moaula Falls at the end of Halawa Valley



Halawa Valley's Access Roadway

**Halawa Valley
Molokai**

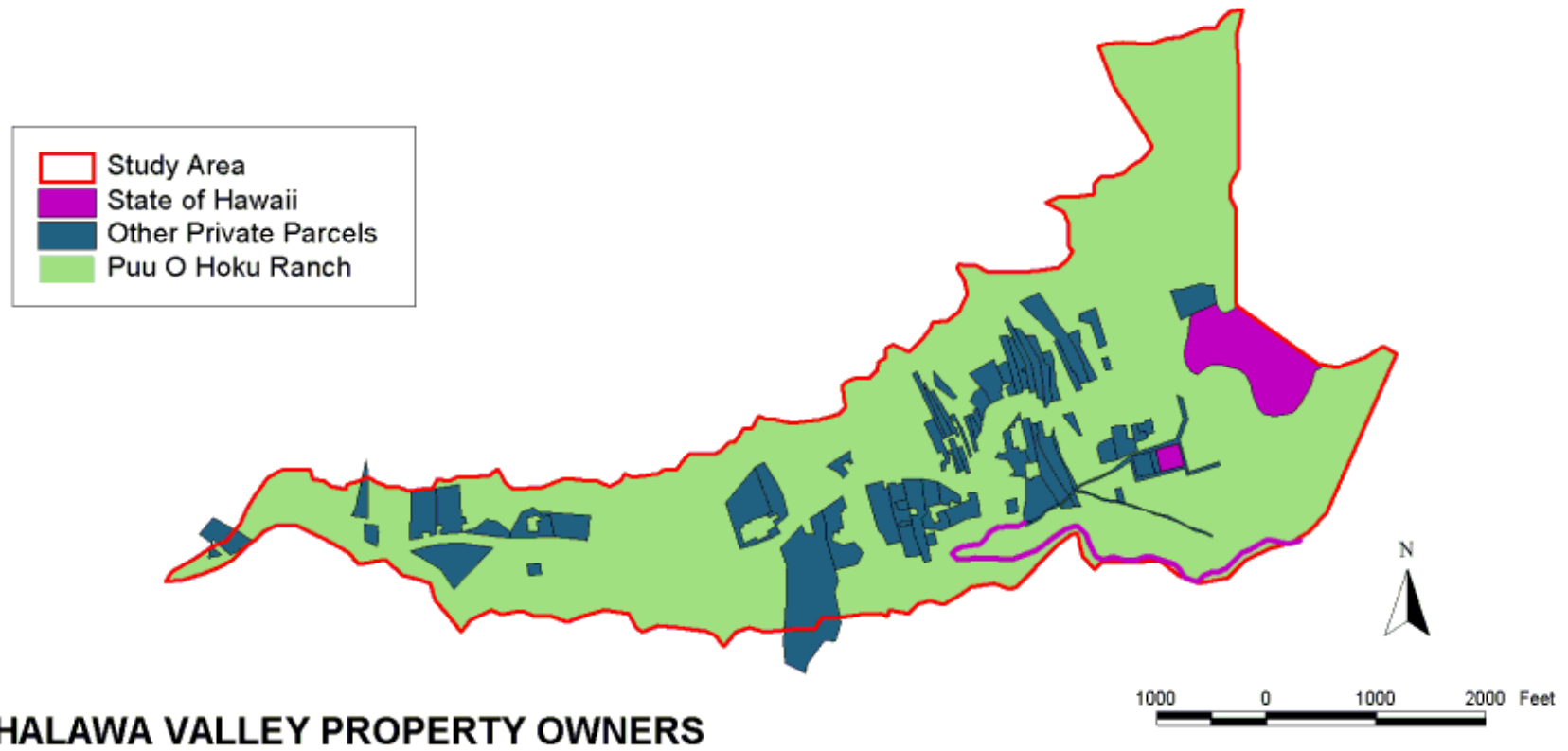


Figure 1

E: arcview@molokaistudyarea.apr

HAWAII AREA STUDIES

Halawa Valley Molokai



HALAWA VALLEY PROPERTY OWNERS

Figure 2



Halawa Park



Halawa Valley Shoreline and Cove



Halawa Stream at the lower end of the valley



Naupaka is one of the few natives growing in the valley



Halawa Valley



Dwellings in lower Halawa Valley

Land Uses

Land uses in the study area are limited; nearly all of the lands remain in open space and covered in forest vegetation. Scattered about the lower valley are less than a dozen permanent residences and two small churches. Many of the residences appear to be unoccupied and some have small plots of cultivated land next them. There is no electricity in the valley. Currently, there are no more than seven full-time residents living in the valley. During summer months, non-permanent structures are erected along the shoreline and local people come to camp here--many for several weeks at a time. The paved access roadway to Halawa does not go up into the upper valley, where only trails exist. Ala hele, ancient Hawaiian trails, go up both sides of the valley. Nearly all of the valley's vegetation is composed of alien species.

The extensive remains of important Hawaiian archeological sites and features are now mostly covered over by vegetation. These remains consist of hundreds of irrigated agricultural stone wall terraces, irrigation ditches, several temples, fishing shrines and numerous residential sites--the components of an entire ancient Hawaiian community. A few of the taro terraces were recently rebuilt in the lower valley and that Hawaiian staple is once again being grown here.

The entire study area is within the Conservation District. The State of Hawaii (Department of Land and Natural Resources) is responsible for all land uses within the Conservation District. Conservation Districts include lands which are "necessary for protecting watersheds and water sources; preserving scenic and historic areas; providing park lands, wilderness and beach reserves; conserving endemic plants, fish and wildlife; preventing floods and soil erosion; forestry; open space areas whose existing openness, natural condition or present state of use, if retained, would enhance the present or potential value of abutting or surrounding communities or would maintain or enhance the conservation of natural or scenic resources; areas of value for recreational purposes; other related activities; and other permitted uses not detrimental to a multiple use conservation concept"¹

¹ Chapter 205-2, Hawaii Revised Statutes

Approximately 110 acres of land in the Halawa Valley have been categorized by the U. S. Natural Resources Conservation Service (NRC) and the Hawaii Department of Agriculture as Prime Agricultural Land. Prime Agricultural Land is defined by the NRCS as land which has the soil quality, growing season and moisture supply needed to produce sustained high yields of crops economically when treated and managed according to modern farming methods. The 110 acres of Prime Agricultural Land are located in the bottom lands of the lower portion of the Halawa Valley.

Regional Context

The island of Molokai and its residents, most of them of Hawaiian ancestry, have remained apart from the great social and economic changes that have taken place in the State of Hawaii over the past several decades. This non-participation has occurred mainly by circumstance, but to some degree by choice.

For decades, pineapple was grown in central and western Molokai and constituted the primary economic activity for the entire island. As on the other major islands in Hawaii, the growing of pineapple no longer takes place on Molokai. After years of steady decline, pineapple production was finally abandoned in the early 1980's. On Molokai, no economic activity has fully replaced pineapple and there continues to be high unemployment and only limited economic opportunities.

Today, cattle ranching, coffee growing, and fruit and vegetable farming are the principle economic activities on Molokai. The National Park Service is represented on Molokai by Kalaupapa National Historical Park, located midway on the island's north coast.

The population of the island has remained small, estimated to be about 7,000, and predominantly rural. Kaunakakai, Molokai's major population and commercial center, is located about midway along the island's south coast. The small former plantation communities of Kualapuu and Maunaloa and the rural Hawaiian Homestead settlements of Hoolehua and Kalamaula are all located in the central plain. Except for rural residences scattered along the southeast coast, the eastern part of the island is unpopulated.

Molokai's principal airport is serviced by the two major interisland carriers with scheduled daily flights to and from Honolulu and to most of the other major islands. Interisland barges regularly dock at the Kaunakakai Harbor.

Molokai residents continue to place a high value on being able to retain a "local" lifestyle. Facilities to support the tourism industry are very limited. Major hotel accommodations on the island consist of the Kaluakoi Resort located at the western end and the Hotel Molokai near Kaunakakai. The Molokai Ranch, in addition to being a working cattle ranch, operates low-key overnight accommodations catering to ecotourists. There are a few rental condominiums available at Maunaloa and near Kaunakakai, as well as bed and breakfast operators on the outskirts of Kaunakakai.

The rural residents of East Molokai have traditionally relied on their environment as a source of subsistence and they continue to do so. Most homes on this part of the island have small garden plots and papaya, banana, or citrus trees growing in their yards. There are axis deer in the uplands of East Molokai along with feral pigs. Hunting deer and pig is a common activity, not just for recreation but as a source of meat and as a medium of exchange for other needed items. Also, fruits, nuts and vegetables can still be found in the forests of East Molokai and native shellfish such as opihi are still harvested along the northern coast.

Resource Type

Two NPS publications, Natural History in the National Park System and History and Prehistory in the National Park System, identify the thematic components of a national preservation system. These reports are utilized to evaluate study areas based on the significance of their natural or cultural resources. The natural history report lists and describes 33 different natural history themes, categorized as either geological or ecological, and groups them by landform type, geologic history, land ecosystems, or aquatic ecosystems. The report then identifies how well each of the themes is represented in the national park system and in the national registry of natural landmarks. The history and prehistory report consists of a thematic framework in outline form comprised of major themes, subthemes, topical facets, and facets which classify the historic resources of the nation. The report also lists how completely each of these themes are represented

in the national park system and in the national historic landmark program.

The study area contains examples of the following resource types, as defined by the History and Prehistory thematic frameworks.

Prehistory theme: Cultural Development: Indigenous American Populations

Subtheme: the Earliest Inhabitants

Facet: the Early Peopling of the Pacific

Subtheme: Post-Archaic and Pre-Contact Developments

Facet: Late Prehistoric Adaptations in the Western, Central, and Eastern Pacific

Subtheme: Prehistoric Archeology

Facets: Prehistoric Architecture/Shelter/Housing, Prehistoric Technology, Prehistoric Settlements and Settlement Patterns, Prehistoric Agriculture, and Prehistoric Cultural Change

Subtheme: Ethnohistory of Indigenous American Populations

Facet: Native Cultural Adaptations at Contact: Native Adaptations to Polynesian Environments

None of the 33 natural history themes are represented within the study area.

Recreational resources: At the present time the study area contains only very limited recreational resources consisting of the small county park. Fishing, boating, and gathering occur, but these activities are more for commercial and subsistence purposes rather than for recreation.

RESOURCE SIGNIFICANCE

Cultural Resources

Archeological evidence of very early occupation of the Halawa Valley was identified in 1969 in a subsurface coastal site located in the sand areas adjacent to the mouth of the Halawa Stream. The remains found here by archeologists (Kirch and others) date back to A.D. 650, making Halawa one of the earliest known settlements in all of Hawaii. Kirch's studies and others concluded that the inland portion of the valley was permanently occupied in the period from A.D. 1200-1400 and that Halawa, at that time, supported one of the most dense concentrations of populations in all of the Hawaiian islands, estimated to be nearly 650/square mile.

Archeological surveys indicate that by the 1300's, the valley's population had expanded inland, and small irrigation systems were developed along side streams. By the 1600's, archeological evidence indicates that an extensive taro irrigation system dominated the valley's settlement pattern. At that time, the lower valley's alluvial floodplain was entirely covered in large rectangular fields watered by long irrigation ditches. Altogether, archeologists have estimated that the pond fields of the valley covered about 55 acres. Archeologists have described them as the most complex type of prehistoric irrigation systems in all of the Hawaiian islands.

Archeological surveys further up the valley revealed that the narrow alluvial flats here had been terraced by the Hawaiians with stone-faced fields, also for taro production. In the upper valley, extending all the way to the bases of the two waterfalls coming down from the rim at the head of the valley, the remains of small irrigated terraces were found. On the gently sloping colluvium and exposed ridges, the remains of many residential sites, dryland gardens and temples were found along both sides of the irrigated taro fields.

One of first recorded descriptions of the east end of Molokai was in 1793 and came from British explorer George Vancouver who wrote, "...the face of the country, diversified by eminences and valleys, bore a verdant and fertile appearance. It seems to be well inhabited, in a high state of cultivation; and presented not only a rich but a romantic aspect." (Vancouver 1798)

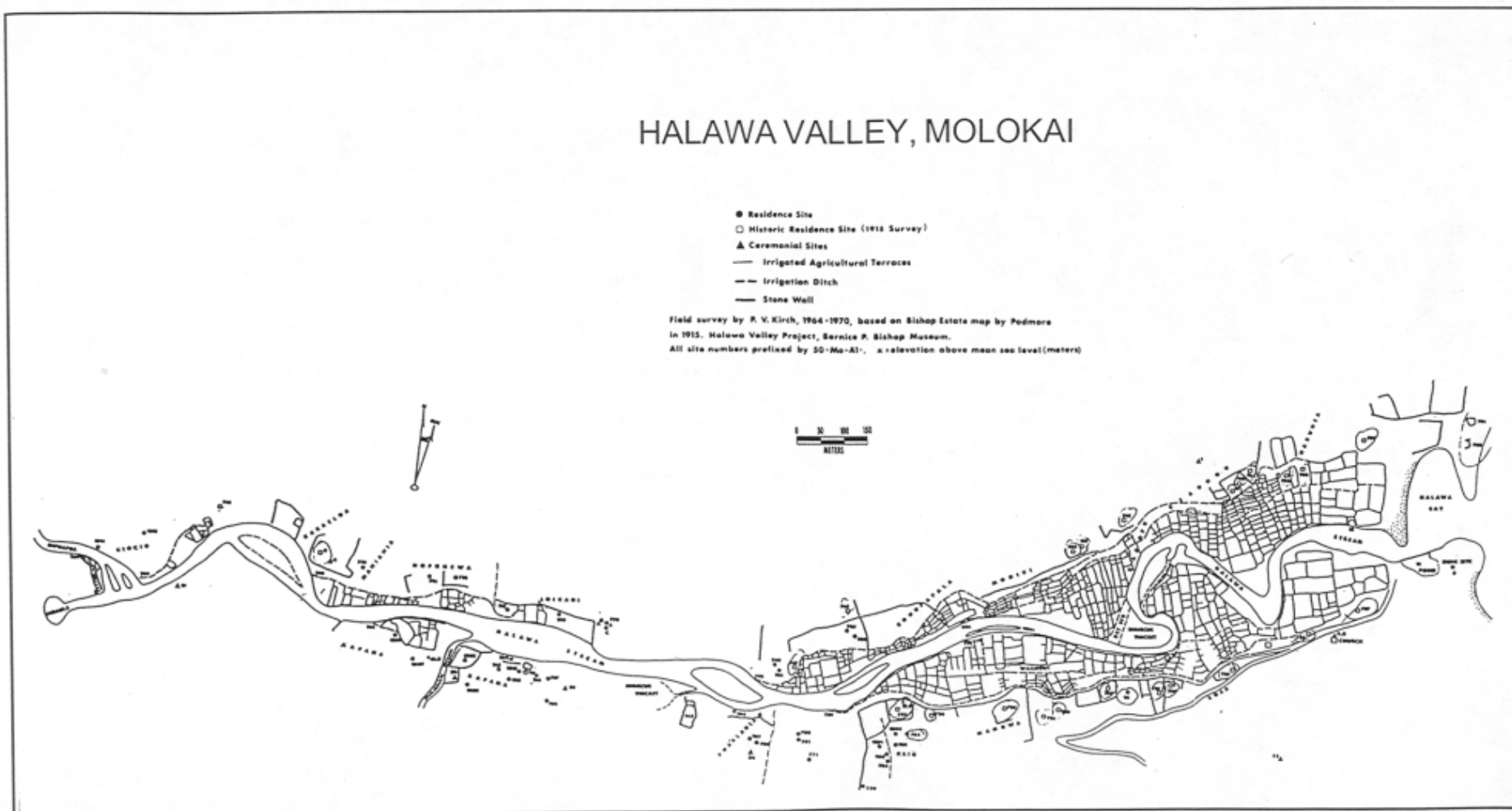


Figure 3. Halawa Valley Prehistoric Settlement Patterns. From *Prehistory and Ecology in a Windward Valley: Halawa Valley, Molokai*. 1975. P.V. Kirch and M. Kelly, ed.

In 1833, R. Hitchcock, the first missionary permanently stationed on Mokokai, described Halawa in his Molokai Station Reports as:

a beautiful deep valley....watered by a large and delightful stream of fresh water which falls from the mountains...in two grand and beautiful cataracts one of which rushes over a perpendicular decent (sic) of more than five hundred feet into a deep...and crystal lake... The stream which issues from the lake...is so situated as to be easily drawn off by sluices into the taro plots.... the valley is principally laid out in these small rectangular plots...

In 1877, a native Hawaiian described Halawa "as a very fertile valley, with wild fruits, mountain shrimps, and much water in the streams.... There were nine hundred and thirteen taro patches and with the hundred and nine others that I hadn't counted, they totalled a thousand and thirty-two patches. Most of the land is covered in taro" (*Ka Lahui Hawaii*).

John F.G. Stokes, who was Curator of Polynesian Ethnology at B.P. Bishop Museum, was sent to Molokai in 1909 under a grant from the Carnegie Institute to survey the remains of the ancient Hawaiian temples (heiau) found there. While in Halawa Valley, Stokes recorded thirteen medium-sized heiau distributed along the lower slopes and two large luakini heiau (large temples which could be built and dedicated only by ruling chiefs) situated on the higher slopes, with panoramic views of the taro fields and the ocean.

During his survey of the Halawa Valley in 1909, Stokes recorded the following descriptions of religious and ceremonial structures:

HEIAU. Remains consisted of a terrace of stones, approximately 37 feet square; thought to originally been 6 to 9 feet high; said to have been a heiau for human sacrifice.

HEIAU. Site showed that originally there existed a series of terraces faced with stone and paved with stones and earth; main feature was the line of large boulders forming the southern boundary of the heiau; reputed to have been used for human sacrifice.

HEIAU. Destroyed by the construction of a road; said to have been used for human sacrifice and its foundation was probably originally a platform.

HEIAU. Remains consisted of a small platform or terrace with a front 30 feet wide; pavement is 37 feet deep and the east corner is 6 feet high.

HEIAU. Foundation remains were very small and consisted of two adjoining stone terraces; terrace on the south side is 30 feet high, west to east, and 18 feet, south to north; terrace on the north is 30 feet, west to east, and 8 feet south to north.

HEIAU. Foundation consisted of a terrace with a 5 foot high stone bench along its northern face backed by a terrace or platform four feet higher; said to have been used for human sacrifice.

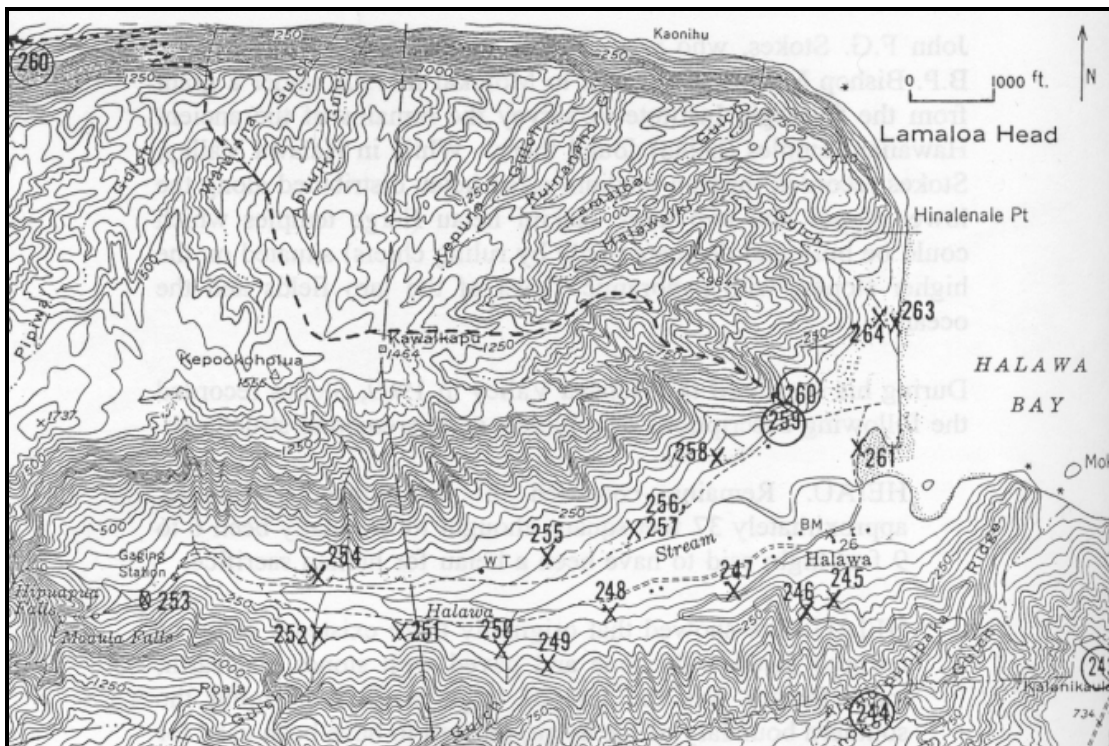


Figure 4. Locations of Hawaiian Religious and Ceremonial Structures in the Halawa Valley. From: *Molokai: A Site Survey*. Summers. 1971.

HEIAU. Remains consisted of a series of stone terraces facing the north; said to have been used for human sacrifice.

HEIAU. Foundation consisted of stone terraces on the north and earth floors on the south; terraces made of angular, flat stones rather than the rounded, water-worn stones used in the construction of the other heiau in the valley.

KO'A. Remains of this fishing shrine consisted of a small wall, enclosing a space of about 6 feet in diameter; the walls are built up to a large stone.

HEIAU. Foundation consisted of two paved terraces, one five feet lower than the other; the upper terrace measured 37 by 13 feet and the lower 42 by 28 feet.

HEIAU. Remains were described as a combination of large and small terraces facing south.

HEIAU. Remains consisted of an earth platform measuring 86 by 23 feet, with a seven-foot retaining wall on its south side.

HEIAU. Remains consisted of a terrace of earth and stone pavement measuring 92 feet by 24 feet; said to be used for prayer.

HEIAU. Described by Stokes as the most imposing heiau structure in the valley... main portion of the remains were part platform and part terrace with a retaining wall of water-worn stones 13 feet high in places; three lines of retaining wall were noted, the outer wall and the second wall were each 3.5 feet wide and the third wall 3 feet wide. Called Mana Heiau, this is one of two luakini heiau found in the valley, a large stone platform with multiple-stepped terrace facings.

PU'UHONUA. Site of this place of refuge not seen by Stokes, but, based on an earlier description, he guessed its location.

HEIAU. Only the site remained, the heiau having been entirely destroyed.

Currently student volunteers, led by Halawa Valley residents, Glenn and Mahelani Davis, are carefully restoring ancient taro works in Halawa Valley.

This stone-lined auwai, or irrigation ditch, is restored and operational . . .



. . . irrigating ancient taro patches, or loi, faithfully restored.



Halawa Valley archeological features seem unchanged from Kirh's field survey of 1964-'70.



Both this roadway and wall are ancient features.

Halawa Valley appears today as an uninterrupted and intact archeological site.



HEIAU. Only the site remained, the heiau having been entirely destroyed; said to have been probably dedicated to the shark-god, Kauhuhu.

KO'A. This fishing shrine's remains are described as a "small enclosure with its walls joining up with a large rock."

HEIAU. Described as a "collection of small platforms, terraces and walls..." Earlier described as "20 by 30 feet, of stones built up six feet or so in the corner of a walled-in space like a door yard, say 125 by 150 feet, irregularly shaped. This is the other luakini heiau, Papa Heiau, a complex structure with several platforms, terraces, and enclosing walls.

The traditional Hawaiian way of life continued in the Halawa Valley well into the 20th century. It was not until 1957, when a huge tsunami pushed ocean waves far up the valley and left the taro crop ruined in their wake, that the valley was abandoned.

Although overgrown with alien vegetation, the remains of what the ancient Hawaiians built at Halawa can still be seen today. The lower valley contains the stone retaining walls of several large, irrigated taro patches on the floor of the valley, the two largest of which are fed by multiple irrigation ditches, irrigated agricultural terraces, stone walls, ceremonial sites (heiau and koa), and residential sites on the lower slopes. Above the irrigated terraces, there are the remains of terraces believed to be for the planting of dryland crops. There are also the remains of a series of terraces along a small tributary stream on the south side of the valley.

Natural Resources

Geomorphology and Soils. Halawa Valley is the lower portion of an extensive drainage basin that extends far up into the East Molokai mountains. The valley is about one and three-quarters miles long and about one-half mile wide at the coast to less than one-third mile wide inland.

Crosswise, from ridge to stream, the valley can be divided into three regions: first are the cliffs which are bare outcrops of basalt where mechanical weathering and mass movements are the primary erosive processes; second is the veneer of talus and colluvium well covered in vegetation where soil creep and mass movement, to some extent,

are erosive agents; and three, the alluvial terraces bordering the stream which culminate in the alluvial plain and where the stream itself acts as the erosive agent.

The cliffs region, in pre-contact Hawaiian times was nonproductive, except perhaps as a source of raw stone. The region of taluvial slopes was amenable to "dry" or unirrigated horticulture during Hawaiian times, although the lesser slopes could be converted to terraced pond fields. The alluvial terraces and floodplain with their hydromorphic soils were easily amenable to use for pond field agriculture, particularly wet taro horticulture.

Halawa is a partially drowned valley resulting in a relatively deep and sheltered bay. Although coral is present in the bay as evidenced by the carbonate sand beaches, the freshwater output prevented the development of a fringing reef. Halawa has a fairly large expanse of inshore habitat. Surge-zone habitat varies considerably in Halawa, ranging from sea-cliff at Cape Halawa to Lamaloa Head, to boulder or cobble beach, to exposed carbonate sand beach, to sheltered sand-and-silt beach in the "lagoon" near the Halawa Stream effluent.

Marine Resources. Invertebrates found along Halawa's cobble-beach habitat include limpets (*Helcioniscus exaratus*), sea snails (*Nerita picea*), periwinkle (*Littorina* spp), cowrie (*Cypraea* spp), several species of echinoderms (*Heterocentrotus mammillatus*, *Colobocentrotus atratus* and *Centrechinus paucispinus*) and crustacea (*Grapsus grapsus tenuicrustatus*). Sand or silt bottom conditions present in some parts of the cove provide habitat for Lamellibranchs such as the bivalve *Brachiodontes cerebristriatus*.

The following species of fish are present in the cove: akule or big-eyed scad (*Trachurops crumenophthalmus*), gray mullet (*Mugil cephalus*), lolo (*Coris gaimardi*), barracuda (*Sphryaena barracuda*), manini (*Acanthurus triostegus sandvicensis*), moi (*Polydactylus sexfilis*), and parrotfish (*Scarus perspicillatus*).

Vegetation. The present vegetation of Halawa Valley reflects the more than 1,000 years of human habitation here. According to Kirch (1975), the lower, seaward ridges up to 1,000 feet in elevation appear to have been "largely denuded in prehistoric times..." Kirch adds that, today, Halawa "abounds in feral survivals of cultivation." The original native forest of the valley, believed to be dominated by koa (*Acacia koa*), was cleared by early Polynesian settlers. Fire is believed

to have been a major tool used in the clearing. At Halawa, there is also considerable evidence that significant human-induced erosion had occurred in the valley lowlands by A.D. 1200. By the time of early European contact in the late 1700's, the valley's vegetation had been reduced to a grassland-shrub climax.

The following plants, all once cultivated by pre-contact Hawaiians, are still present in the valley: taro or kalo (*Colocasia esculenta*), elephant's-ear plant or 'ape (*Alocasia macrorrhiza*), bitter yam or pi'oi (*Dioscorea bulbifera*), kava or 'awa (*Piper methysticum*), hibiscus or hau (*Hibiscus tiliaceus*), kamani (*Calophyllum inophyllum*), coconut palm (*Cocos nucifera*), breadfruit or ulu (*Artocarpus altilis*), Polynesian arrowroot or pia (*Tacca leontopetaloides*), Indian mulberry or noni (*Morinda citrifolia*), banana or mai'a (*Musa* hybrids), sugar cane or ko (*Saccharum officinarum*) and ti (*Cordyline fruticosa*).

The vegetation along the ocean shore at Halawa is sparse, except for grasses. Along the strand, vegetation consists primarily of the alien grass dropseed or smutgrass (*Sporobolus* spp.). Popolo (*Solanum linnaeanum*), native to Africa, is also growing here along with some hala (*Pandanus odoratissimus*) and two stands of coconut palm. A stand of large kamani is located on the north side of the valley. Kou (*Cordia subcordata*) and noni are also present, and naupaka (*Scaevola sericea*) grows in clumps along the north shoreline. Coconut palm, kamani, kou, and noni are Polynesian introductions and naupaka is native to Hawaii, although found throughout the Pacific.

The lower seaward ridges contain isolated stands of the native plants, koa and 'ohi'a-ha (*Eugenia sandwicensis*), along with a few examples of 'ohi'a (*Metrosideros collina*) and pukiawe (*Styphelia tameiameia*). The present dominants along the lower seaward ridges are koa haole (*Leucaena glauca*) and Christmas berry (*Schinus terebinthifolius*), mixed with substantial numbers of guava (*Psidium guajava*), lantana (*Lantana camara*) and prickly pear cactus (*Opuntia megacantha*). There are also stands of sisal (*Agave sisalana*). These are all alien species.

Along the brackish estuary of the Halawa Stream, the vegetation consists of reeds, tall grasses, hala, milo (*Thespisia populnea*) and red mangrove (*Rhizophora mangle*). Milo is a Polynesian introduction and red mangrove an alien species. Hau, a Polynesian introduction, grows extensively along the lower parts of the stream.

Scattered throughout the valley is the alien java plum (*Eugenia cumini*). Other common species within the valley are guava, kukui (*Aleurites moluccana*) and mountain apple (*Eugenia malaccensis*). The presence of kukui often is an indication of past wetland taro cultivation. The ground cover here consists primarily of ginger (*Zingiber* sp), ti, wandering Jew (*Commelina diffusa*), and Job's tears (*Coix lacryma-jobi*). Breadfruit and mango (*Mangifera indica*) are distributed throughout the valley. Kukui, ti, and 'ulu are considered Polynesian introductions, while the others are alien species.

The Nature Conservancy's (TNC) Hawaii Heritage Program database lists the Halawa Stream as a natural community. The program defines natural communities as contiguous habitats composed of biological and physical features where native elements comprise at least 60 percent of the vegetation cover. The database contains no locations within the study area for rare plants or native-dominated plant communities. No rare, threatened, or endangered plants are known to exist within the study area.

Wildlife. The most common wildlife of the Halawa Valley are non-native birds. Several species are found here, including the Japanese white-eye (*Zosterops japonica*), Japanese bush warbler (*Horeites cantans*), Common mynah (*Acridotheres tristis*), Northern cardinal (*Cardinalis cardinalis*), Brazilian cardinal (*Paroaria coronata*), Northern mockingbird (*Mimus polyglottos*), English sparrow (*Passer domesticus*), house finch (*Carpodacus mexicanus frontalis*) and the Black francolin (*Francolinus francolinus*). The most common non-native animals are mongoose (*Herpestes auropunctatus*) and rats (*Ratus ratus*). Dogs and cats are also present in small numbers. Feral pigs (*Sus scrofa*) and axis deer (*Axis axis*) are occasionally found in the upper portions of the study area.

TNC's Hawaii Heritage database lists the following rare native animals as having been observed within the study area: the honeycreeper, 'o'u (*Psittirostra psittacea*), the honeyeater, Bishop's 'o'o (*Moho bishopi*), the hawksbill sea turtle (*Eretmochelys imbricata*), and green sea turtle (*Chelonia mydas*). The 'o'u and the 'o'o were observed in 1907 and 1893 respectively and are no longer present in the study area. Both are listed as endangered species. The sea turtles were both observed in 1990. The hawksbill is listed as endangered and the green as threatened.

Current Status of the Study Area

During site inspections of the study area in September 1999 and in March 2000, it appeared that beyond the public park and paved road (State Route 450) the Halawa Valley was closed off to outside visitors. Dirt roads were posted with "No Trespassing" and "Private Property" signs and padlocked gates had been installed across public roads to prevent access to the trail leading to the upper valley and the waterfalls.

A local island resident apparently takes visitors on guided walks to the waterfalls at the upper end of the valley. Each visitor is charged anywhere from \$25 to \$40 for this guide service. These activities are unstructured and uncontrolled. Valley residents have complained that these guided walks sometimes come through their front yards.

Evaluation of Resource Significance

Cultural Resources. Intensive and extensive surveys have been carried out in the Halawa Valley by professional archeologists. From an archeological standpoint, the valley is one of the most significant places in all of Hawaii. Survey results have provided not only an understanding of the continuous settlement of this valley by Hawaiians over a period of some 1,200 years, from prehistoric through historic times, but have added considerably to an understanding of the prehistoric Hawaiian culture in other locations. Although not the oldest site in Hawaii, archeologists believe Halawa contains a more complete representation of the different facets of the prehistoric Hawaiian culture. The large number of ceremonial structures, including two luakini heiau, found in the valley is another attestation to Halawa's cultural significance.

The initial settlement date for a prehistoric occupation site at Halawa Valley has been set by archeologists at A.D. 650, making it one of the oldest in all of Hawaii. Materials excavated at Halawa in connection with the 1969-1970 archeological survey of the valley provide evidence for the longest continuous cultural sequence yet documented for Hawaii. Only one other known site, this one on Oahu, is representative of an earlier period, but the occupational sequence of this site is estimated to be only 500 years. Other sites in Hawaii have time depths up to 900 years. The prehistoric occupation of the Halawa site is known to be well over



one thousand years. Archeologists place the significance of the Halawa site in its representation of continuous cultural development, now approaching 1,350 years.

Archeologists have concluded that the materials found at the Halawa site are indicative of an early Hawaiian culture that already reflected some degree of adaptation to the local ecosystem. Archeologists argue that these materials provide a major contribution toward an understanding of the first half of the Hawaiian prehistoric sequence. Sites at Halawa appear to have been occupied continuously, on a permanent basis, for 600 to 700 years until about the end of the thirteenth century.

The major surveys and excavations carried out at Halawa in 1969-1970, show the late (post A.D. 1200) agricultural system of the valley as a combination of dual technologies of shifting agriculture (swidden) and of irrigation. The valley also provides an example of a massive pond field complex, as well as numerous examples of residential sites from different periods. The residential sites in Halawa provide a clear picture of the course of domestic architecture for most of the Hawaiian sequence.

Stokes' survey consisted of descriptions of 17 reputed heiau or other types of religious structures in the valley. According to Kirch (1975), the larger luakini heiau found in the Halawa Valley rank in size and complexity with the more prominent heiau sites known throughout the Hawaiian Islands. The construction of these two heiau is attributed to a high chief of the island of Hawaii.

Archeologists contend that Halawa also provides a major example of the modification of the ecosystem through human economic effects. Archeological evidence at Halawa indicates that the lowland forest and the associated fauna were largely destroyed and removed through forest clearing and burning. At the same time, archeologists argue that Halawa is also an example of the adaption of culture under certain environmental constraints. At Halawa, archeological evidence shows that the development of a large-scale irrigation system was greatly influenced by the presence of an ample water supply and large areas of soil suitable to irrigation plus the limited slope land available here for shifting agriculture and the human-induced forest degradation on the slopes.

The archeological survey work done in Halawa in 1969-1970 defined a developmental sequence for the valley consisting of three phases. The first phase, from A.D. 600 to 1350, was when the valley's population was small and settlement was along the coast; the second phase, from A.D. 1350-1650, saw the expansion of the population and its move into the interior portions of the valley; the third phase, A.D. 1650 to 1800, saw development of a major irrigation system when the valley floor was covered in pond field complexes and canals.

Professional archeologists have attributed the Halawa Valley's cultural significance to its uniqueness in providing a more complete understanding of the initial phases of Hawaiian adaptation and cultural evolution. This gives the cultural resources at Halawa a significance beyond the valley itself. Halawa is significant also as an example of the evolution of Polynesian culture.

In sum, the Halawa Valley contains the most complete known representation of the different facets of the prehistoric Hawaiian culture. The archeology of the valley also represents the longest period of continuous Hawaiian cultural development and contains the most extensive and intact remains of the wet, windward valley archeology in existence. The archeological sites and features found in the valley are outstanding, have produced information of major scientific importance and possess both site and structural integrity. The cultural resources of the Halawa Valley clearly meet NPS criteria for national significance.

Natural Resources. The geology of the Halawa Valley has very little significance. None of the landforms present in the study area represent any of the major geological events or features associated with the island of Molokai. Similarly, the valley's ecological values lack significance. As noted, the presence of humans in the valley over a span of more than a millennium has resulted in the major changes in the biota of the valley. Very little native vegetation remains and wildlife resources are limited to alien species.

NPS, in the early 1980's, identified rivers eligible for Wild and Scenic River status. Generally, these rivers were identified as having outstanding natural, cultural and recreational characteristics, and were free flowing and undeveloped. On Molokai, the Halawa Stream received this recognition.

EVALUATION OF SUITABILITY AND FEASIBILITY

Rarity of This Type of Resource

Although several facets of the traditional Hawaiian culture, including significant archeological sites and features, are already well represented within existing units of the national park system, the tangible aspects of that culture found in the Halawa Valley represent a more complete picture of prehistoric Hawaii. Four different Prehistory subthemes are represented by the archeological sites and features found in the Halawa Valley. The subtheme, the Earliest Inhabitants, is not represented by any other unit of the national park system in Hawaii. The following facets, all represented at Halawa, are not well represented by any of the existing units of the national park system in Hawaii: Prehistoric Agriculture, Prehistoric Cultural Change and Native Adaptations to Polynesian Environments. Moreover, these nationally significant cultural resources of the Halawa Valley are presently not being protected and are not available for public enjoyment by another land managing entity.

Kahana Valley State Park on the island of Oahu was established to preserve an example of an intact ahupua`a. The park contains Hawaiian archeological resources of statewide significance and is judged to be the best example of an area in other public ownership with resources similar to those found in the Halawa Valley. While similar, the cultural resources of the Kahana Valley area not as ancient as those found in the Halawa Valley and do not represent nearly as many components of a traditional Hawaiian community as do the cultural resources of Halawa Valley; nor do the resources at Kahana represent as long a period of Hawaiian cultural development. There are no similar areas in private ownership.

Based on the above, it is judged that the cultural resources of the Halawa Valley meet the test of suitability for inclusion into the national park system.

Feasibility for Addition to the National Park System

Land acquisition costs are considered feasible. As a means of determining current land ownership and the feasibility of potential acquisition costs, public property tax records for lands within the study area were examined. The property tax records for 1999 showed the assessed valuation for the approximately 500-acre study area to be about \$700,000. The study area remains essentially undeveloped, with only 10 of the 86 parcels containing improvements (residences, a small church, and county park restrooms), and all lands are within the Conservation District. Generally in Hawaii, Conservation District lands are assessed at well below market value to encourage property owners to keep their lands in open space. Consequently, although useful in determining feasibility, the assessed valuation does not and should not be regarded as representing fair market value. In Hawaii, the correlation between assessed value and market value on undeveloped lands is considered to be extremely low.

The major landowner in the Halawa Valley, the Puu O Hoku Ranch, appears to be a willing seller. The owner, whose properties cover about 85 percent of the study area, has expressed interest in seeing ranch lands in the valley remain undeveloped and the important Hawaiian cultural resources they contain maintained and protected. The owner feels NPS management to be an appropriate way to ensure that protection.

With regard to the establishment of a unit of the national park system, the positions of most of the rest of the landowners in the Halawa Valley, about 40 in all, are unknown. Many of these owners are absentee and cannot be easily reached. Also, some of these parcels have multiple claims of ownership.

During informal meetings with Molokai residents, including valley landowners and tenants, most expressed a preference for community management of lands and mixed feelings and, in a few instances, uneasiness over any management or control from the outside. Outside management was perceived by some as a threat to maintaining traditional land uses and the rights of native Hawaiians. At the same time, there was a recognition by others that the presence of a national park in the Halawa Valley would mean more jobs for local people and a means to diversify Molokai's economic base. Some recognized that the establishment of a national park would not necessarily disrupt environmental resources or interfere with traditional uses of the land.

The following assurances by NPS helped to lessen concerns voiced by Halawa Valley landowners and tenants and Molokai residents: private lands could continue to exist within any national park; lands for any national park in the Halawa Valley would be acquired only from willing sellers; and traditional land uses such as the growing of taro could take place on national park lands.

The study area is feasible in terms of being of sufficient size and appropriate configuration to ensure the long-term protection of its cultural resources and to accommodate public use. The existing roadway would provide a feasible means for accessing a unit of the national park system.

Operation and development costs are considered to be feasible. The annual costs to begin operations as a unit of the national park system are estimated to be approximately \$500,000. Initial development costs are estimated to be approximately \$750,000. These estimates are based on the annual costs of operations and the existing visitor use and operational facilities at Pu`uhonua o Honaunau National Historical Park, Pu`ukohola Heiau National Historic Site, and Kaloko-Honokohau National Historical park, all on the Big Island of Hawaii.

Position of the Local Community. Much of the test of feasibility of the Halawa Valley as a unit of the national park system lies with the feelings of local Molokai residents, especially the landowners and tenants who are residents of the valley and East Molokai. Their endorsement of the Halawa Valley as a unit of the national park system is critical. Two decades ago, nearby Kalaupapa National Historical Park became feasible as a unit of the national park system only when the patients there realized that the future presence of NPS at Kalaupapa would be that community's best guarantee they would be able to live out the remainder of their lives in the place they for so long had called home.

As part of the Maui County General Plan update, the Molokai Community Plan was prepared in 1984. Public participation by the residents of Molokai played a key role in the preparation of the Molokai Community Plan. The Plan's objectives and several of its recommended policies are judged to be relevant to this study and have a bearing on the feasibility of establishing a unit of the national park system in the Halawa Valley.

The stated primary objectives of the Molokai Community Plan were to diversify the region's economic base and provide more job opportunities and community services without disrupting the island's environmental resources. Recommended policies included:

Allowing expansion of the visitor industry, within the existing tourist destination area to the extent that it does not infringe upon the traditional social, economic and environmental qualities of the island.

Promoting the traditional use of....valleys along Molokai's North Shore as determined to be appropriate and the protection of shoreline marine life. Traditional lands would generally be considered all lands formally or presently employed in traditional Hawaiian uses.

Limiting the visitor use accommodation center to Kaluakoi.

Regulating land use in a manner which reaffirms and respects customary and traditional rights of native Hawaiians as mandated by Article 12, Section 7, Constitution of the State of Hawaii.²

These policies are instructive for they reveal the importance of certain key local concerns. These concerns are:

1. local residents do not wish to see any expansion of the visitor industry on Molokai;
2. they do not want that industry to infringe upon the existing island lifestyle; and
3. they want traditional land uses and rights of native Hawaiians to be sustained.

In addition to the community plan, the Mana'e or east end residents of Molokai developed separate policy statements to outline their own goals and objectives for future developments on that part of the island. One of their statements called for a zoning designation of a

² The State reaffirms and shall protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by ahupua`a tenants who are descendents of native Hawaiians who inhabited the Hawaiian Islands prior to 1778, subject to the right of the State to regulate such rights.

separate and distinct category to be called "traditional" be added to the existing designations. Traditional lands would include historic sites and taro lands. The statement also called for archeological sites to be surveyed, documented and managed and for the regeneration of former taro lands to production.

The Trust for Public Lands (TPL) is presently assisting Halawa Valley residents in working toward management of valley resources at the community level. TPL has acquired properties in the valley and then placed the land in the hands of a local land trust for the use of residents interested in recreating a landscape based on the sustainable resource management practices of native Hawaiians. The goal of this trust is to provide a land ownership base for community-led agricultural development and community-based natural resource management in the valley.

Presently, the Pu'u O Hoku Ranch and valley residents and tenants are working together toward managing valley lands, mindful of the broad goals of the community as a whole. Some valley residents are involved in bringing in local young people to learn firsthand about resource values and the Hawaiian culture, including working taro patches and tree planting.

There appears to be some uncertainty over public access rights in the valley. The State of Hawaii contends that the public has access rights to the unpaved road and trails leading up to the falls. A few local residents, on the other hand, contend that the access rights to the upper valley are restricted to kuleana owners only.

ALTERNATIVES FOR RESOURCE PROTECTION AND MANAGEMENT

As part of any feasibility/suitability study, NPS considers (1) whether the nationally significant resources identified in the study area can be assured of being adequately protected outside of the national park system; and (2) whether, under such protection, these resources would be available to the public. Consequently, alternatives have been identified and evaluated in this study report with regard to their potential for achieving the protection and preservation of the nationally significant cultural resources of the Halawa Valley and their public use potential. All of the alternatives have some degree of feasibility. They vary in the level of protection they provide to the resources of the Halawa Valley and the extent of public access.

Each of the alternatives has been evaluated with respect to:

- the degree of long-term resource protection;
- the effect on existing land uses, land ownership and the local economy;
- the quantity and type of visitor use opportunities;
- a general and comparative consideration of cost; and
- the potential for resource improvement.

Alternative 1. Establishment of a Local Land Trust

A land trust is a private, non-profit conservation organization usually set up for the purpose of acquiring lands or easements on land. Trusts sometimes manage the lands they acquire. A local trust would be a community-based organization--in this instance, one dedicated to maintaining and protecting cultural and natural resources of the Halawa Valley.

The trust would provide a means for continuing and even expanding traditional land uses in the valley while maintaining private land ownership. The trust would be managed by a board of volunteers who are members of the community and be chartered as a not-for-profit organization.

Those landowners in the valley who do not want to sell their land but wish to participate could do so by agreeing to grant an easement over their lands to the trust. The easement would carry with the land and

future landowners would be bound to it. That is, these lands could be resold, but would be subject to development restrictions. The trust would act as a long-term land steward of Halawa Valley to assure the retention of its rural, open space character. Under the trust, the irrigated terraces in the valley could be restored to grow taro in the traditional Hawaiian manner.

Sources of funding available to a local trust to acquire land include fund raising events, foundation grants and private donors. In the Halawa Valley another possible funding source for the local trust could be the commercial sale of taro and other produce grown in the valley.

As noted, TPL has already purchased several small parcels in the valley and intends to place title to these lands in the hands of a local trust. This trust would be organized to promote, preserve, enhance and sustain the resources related to the Halawa Valley. The trust would also foster community-based stewardship of these resources and promote educational opportunities. Trust lands would be used by valley residents interested in maintaining the Hawaiian culture. Potentially, TPL could continue to be involved in acquiring additional land in the valley and turning title over to the trust.

Alternative 2. Establishment of a State Park

Broadly, the state park system in Hawaii promotes public enjoyment and enrichment through the preservation, protection and development of natural and cultural features. The Division of State Parks administers a heritage program which emphasizes interpretation, public awareness and appreciation of the Hawaiian landscape and culture, as well as an outdoor recreation program which provides coastal and wilderness recreation opportunities. State historical parks are sites set aside for the preservation and interpretation of places of significant historic or prehistoric value.

On Molokai, the 230-acre Pala'au State Park was established as a backcountry site with basic facilities for camping, picnicking and for the enjoyment of the spectacular scenic overview of the Kalaupapa Peninsula. Pala'au State Park is located next to Kalaupapa National Historical Park.

In 1978, the State of Hawaii Department of Land and Natural Resources proposed the expansion and development of the state park system on all the major Hawaiian islands. Acquiring and developing

lands in the Halawa Valley of Molokai as a major state park was part of that proposal. Management objectives identified by the state for the proposed park included preservation of scenic and historic values, development of an interpretive program and recreation facilities for hiking, camping, picnicking, and limited water recreation activities.

The Halawa Valley was identified by the state as a "High Value Site of Primary Concern." Management concerns identified indicated that the entire valley did not need to be acquired, but that some kind of land use control over the entire valley was needed. The proposal called for public use portion of the state park to be limited to the lower valley near the beach and along a trail corridor to the falls. Also, the state indicated that serious consideration would be given to allowing small landowners to continue to live on and/or farm lands on the valley floor. Protection, stabilization and acquisition of archeological sites were all seen as major needs.

Halawa Bay has been identified by the State of Hawaii as a potential marine life conservation district. State management within marine life conservation districts seeks to conserve, protect and increase marine resources. Within marine life conservation districts, fishing may be prohibited or controlled and other uses of marine resources restricted by regulation.

Alternative 3. National Historic Landmark Designation

Designation of the Halawa Valley as a National Historic Landmark (NHL). This is a voluntary program which provides recognition to historic resources determined to be of national significance. NHLs may be publicly owned or privately owned. They are designated by the Secretary of the Interior. Designation occurs only with the consent of the landowner or landowners. Land ownership remains the same and private property rights are not altered by NHL designation. No requirements for public access come with landmark designation.

In addition to maintaining historic properties located within units of the national park system, NPS is authorized to conduct surveys, publish studies and otherwise encourage the preservation of historic properties or sites not owned by the federal government. Properties and sites studied for national historic landmark designation are surveyed and evaluated by professional historians utilizing the same thematic framework described elsewhere in this study. Only qualified sites and

properties are declared eligible for designation. Qualified sites and properties are those judged to possess exceptional value to the Nation--that is, have been determined to be of national significance.

Formal studies prepared for NHLs are reviewed by the Secretary of the Interior's Advisory Board. The advisory board submits its recommendations to the Secretary of the Interior who has the final responsibility for declaring historic properties eligible for designation as NHLs. Following the Secretary's announcement of a properties' eligibility, the owner or owners are invited to apply for NHL designation. Official designation takes the form of a certificate signed by the Secretary of the Interior and the Director of the National Park Service, together with a bronze plaque attesting to the national significance of the site or property.

Continuing integrity of the historic site or property is essential in maintaining the quality of national significance and NHL status. The object is to maintain those qualities for which the site or property received its recognition as nationally significant.

NHL designation would be considered a contributing factor if a state or local government applied for federal matching grant-in-aid monies such as the Land and Water Conservation Fund (L&WCF) or the Historic Preservation Fund.

Alternative 4. Establishment of a National Heritage Area

A national heritage area has been defined as "a place designated by Congress where natural, cultural, historic and scenic resources combine to form a cohesive, nationally distinctive landscape arising from patterns of human activity shaped by geography." Essentially, national heritage areas are places containing these special landscapes where the people who live and work there have all chosen to come together to conserve their own heritage. Key to the establishment of a national heritage area by Congress is a demonstration of widespread public support by the residents of a potential heritage area for the designation.

To date, the U.S. Congress has established more than a dozen National Heritage Areas. Typically, within these areas partnerships are formed between private nonprofit organizations and federal, state and local governments. Federal agencies such as NPS play a limited role in

these partnerships, usually as a catalyst by providing technical assistance in the preparation of studies and plans.

National heritage areas are mainly composed of private property, although they may include public parks or preserves. NPS does not acquire land within national heritage areas. Lands and resources are protected, maintained and interpreted for public use primarily through the voluntary actions of the people who live within the designated national heritage area.

In establishing individual national heritage areas, Congress has authorized the establishment of a management entity to coordinate the actions of the partners and the development of a heritage area management plan for resource conservation. The management entity may be a local government agency, a nonprofit organization or an independent federal commission.

Alternative 5. Continuation of Existing Conditions (No Action)

This would be a continuation of the status quo. Lands in the Halawa Valley would continue to be in private ownership. Access to most of the valley would continue to be unstructured and uncontrolled. Public roads would likely continue to be blocked by locked gates and posted signs. Valley residents would continue to be disrupted by tourists on guided walks up to the waterfalls. Most of the valley would remain closed off to visitors, except for those willing to pay the fee being charged for a guided hike. Most visitors would continue to be restricted to the shoreline area south of the Halawa Stream. The present small number of off-island visitors to the valley would continue to park their cars in the grassy area near the beach and be confined to walks along the shoreline.

For the present, the Halawa Valley would remain a secluded spot for the use and occupancy of property owners, tenants, and local campers. However, in the long term, under this alternative changes would occur in the valley, most of them due to the selling and purchasing of land and the resulting changes in land use that this process inevitably would bring. Additional residential development would likely occur.

ENVIRONMENTAL ASSESSMENT

Alternative 1. Establishment of a Local Land Trust

Long-Term Resource Protection. Valley lands placed in the trust would be managed to maintain and sustain existing resource values, including traditional native Hawaiian land uses. Under the trust, resource protection and management would be the responsibility of local residents supplemented by volunteers. Restoration of some of the irrigation terraces and ditches to grow taro would likely occur. However, the extent of restoration, who would maintain the restored terraces and whether these efforts would result in the long-term protection of these cultural resources would be problematic under a local trust arrangement. The long-term protection of cultural resources would be largely dependent on the commitment of those involved in the trust and how long the trust continued to exist.

Achieving any long-term control over invasive alien plant species in the valley would be extremely difficult under the trust arrangement. Under the trust, it is likely that alien plant species would continue to dominate valley vegetation. There would be little opportunity to replace alien plants with Polynesian introductions or native species. The vegetation of the valley would continue to appear much as it does today rather than as it would have appeared during prehistoric Hawaiian times.

Regarding the archeological sites and features in the valley, vegetation and soil aggregation would continue cover and bury most of these nationally significant resources and the roots of alien vegetation would likely continue to damage them. Under the trust it is unlikely that a systematic strategy for protecting cultural resources valley-wide could be developed and implemented.

Under the trust arrangement, vegetation clearing to restore irrigation terraces and ditches to grow taro would likely be carried out by unsupervised non-professionals. Consequently, there would be risks of inadvertently damaging archeological sites and features as well as the potential for distorting the archeological record.

Effects on Existing Land Uses, Land Ownership and the Local Economy. The establishment of a land trust would allow those lands in the trust to be managed cohesively to restore and utilize archeological features for traditional agricultural purposes.

The effect of a local trust on land uses would depend a great deal on the amount of valley lands included within the trust. Lands owned by the trust or over which the trust has easement rights would remain largely in open space and used primarily for agricultural purposes. Additional residential development would be limited. Lands in the valley would continue to be in private ownership. Active use of the land for rural residential and agricultural uses would continue. Additional lands would be utilized to grow agricultural products and these could be sold commercially thereby adding some revenues to the local economy.

Quantity and Type of Visitor Use Opportunities. There would be little in the way of additional visitor use opportunities under the local trust arrangement. Public access to significant portions of the Halawa Valley would continue to be restricted and controlled by a few residents. Visitor access to the trail leading to the waterfalls at the upper end of the valley would probably continue to be blocked by posted "No Trespassing" signs and locked gates. Visitors, except for those willing and able to pay for a guided hike, would continue to be restricted to the county park and the beach area south of the Halawa Stream.

General and Comparative Consideration of Cost. The per acre costs to acquire lands under the trust arrangement would probably be the same as costs to private buyers or government entities. In either case, willing sellers would have to be identified, properties appraised and fair market values paid for any land purchased. The trust would acquire lands in the valley using monies from fund raising events, foundation grants or private donors. Adding lands to the existing trust established by TPL or establishing a new trust to acquire other lands would be problematical. Operational and development costs connected with trust lands would be borne by landowners, tenants and volunteers.

Resource Improvement Potential. There would be some potential for resource improvement under the local land trust arrangement. These improvements would be limited and could be short-term. It is unlikely that a local trust would be able to sustain the efforts required to control invasive alien plants, feral animal removal or the systematic and widespread protection and restoration of the valley's significant archeological sites and features.

Alternative 2. Establishment of a State Park

Long-Term Resource Protection. Halawa Valley lands included in the state park would be operated and managed similarly to the existing Lapakahi State Historical Park on the island of Hawaii. The State of Hawaii has acquired 265 acres at Lapakahi and manages these lands to protect the Hawaiian archeological sites and features found there and interpret them for visitors. About 45 acres of this state historical park have been developed with visitor use facilities. In the Halawa Valley, those lands acquired by the state would protect in perpetuity the nationally significant Hawaiian archeological sites and features found there. Biotic resources in the valley would receive only limited protection. Little would be done to control invasive alien plant species or feral ungulates.

Effects on Existing Land Uses, Land Ownership and the Local Economy. Lands acquired by the State of Hawaii would be used for historical park purposes. Except for those lands in the park identified for visitor use or operational facilities, the state park would be managed to protect and stabilize Hawaiian archeological sites and features. Only a portion of the park would be used to develop visitor use facilities such as a visitor center, parking and rest rooms. These facilities would be built only in those areas which do not contain Hawaiian archeology. Under state park management, there would be serious consideration given to allowing small landowners to continue to live on and/or farm lands on the valley floor. Valley lands acquire by the state would be permanently withdrawn from prospective commercial or residential development. Valley lands acquired by the state would be managed cohesively as a single unit.

There would be a major change in land ownership in the valley--more public ownership and less private ownership. However, the state indicated in its 1978 proposal for a Halawa Valley park that the entire valley need not be acquired and that land use regulation could also be used as a means to protect resources.

The establishment of a state historical park would likely have long-term beneficial effect on the local economy. Directly, there would be additional jobs created for local people to work in the state park and indirectly there would be some increase in service-related jobs on Molokai due to an increase in visitors as a consequence of a new state park acting as a visitor destination.

Quantity and Type of Visitor Use Opportunities.

There would be an increase in the number of visitor use opportunities if a state historical park were to be established in the valley. Those portions of the valley in public ownership would be open to visitors. More of the cultural, natural and scenic attributes of the valley would be available for public enjoyment and appreciation. The state's earlier proposal for a state park called for public use to be limited to the lower valley near the beach and along a trail corridor to the falls. Under this alternative, there would be increased opportunities for visitors, including local visitors, to learn more about the prehistoric Hawaiian culture.

General and Comparative Consideration of Cost. Per acre land acquisition costs would be approximately the same as under the previous alternative. It is likely that more lands would be acquired under this alternative than under the trust arrangement, so land acquisition costs would be higher. The State of Hawaii would acquire lands for the historical park on a willing seller basis. Properties to be acquired would have to be appraised and owners compensated at fair market value.

The costs to operate and maintain the state historical park would come from public funds appropriated by the state legislature. Operating a state park would likely be more costly than the operation of a local land trust. Some of the expenditures for acquisition and development of the state park could be shared with the federal government through the use of L&WCF matching grant monies.

Resource Improvement Potential. There would be a greater potential for restoring archeological resources under this alternative than under the previous alternatives. The archeological sites and features within the state park would be protected in perpetuity. However, natural resource management by the Division of State Parks would likely entail only minimal effort to control invasive alien plants in the valley. Also, removal of feral animals would probably not be a resource management goal under state park administration.

Alternative 3. National Historic Landmark Designation

Long-Term Resource Protection. NHL designation is the formal recognition afforded historic or archeologic resources that

have been formally studied and determined to be of national significance. However, NHL registration is not legally binding and therefore long-term protection of the nationally significant Hawaiian archeological sites and features found in the Halawa Valley could not assured solely by landmark designation.

Effects on Existing Land Uses, Land Ownership and the Local Economy. There would be no direct effect on land uses or land ownership in connection with designation as a NHL. Lands in the valley would continue to be in private ownership. There would little or no effect on the local economy from any increases in visitation to Molokai from off-island tourists interested in seeing national historic landmark resources. Landmark designation would not provide any level of protection for the Halawa Valley's biotic resources.

Quantity and Type of Visitor Use Opportunities. No change from the existing conditions. Although landmark designation would probably increase public awareness of the prehistoric Hawaiian archeological sites and features found in the Halawa Valley, no change in public access opportunities would come with NHL designation--unless landowners wished there to be. Visitors to Molokai driving to the Halawa Valley to see national historic landmark resources would likely encounter the present physical barriers to access. Visitors would continue to be charged a fee for the guided hike to the waterfalls.

General and Comparative Consideration of Cost. There would be no costs connected with NHL designation.

Resource Improvement Potential. There would be some additional potential for resource improvement due to the increase in awareness of valley archeological resources which NHL designation would bring.

Alternative 4. Establishment of a National Heritage Area

Long-Term Resource Protection. Under the heritage area designation there would be an increased potential for maintaining the cohesiveness of the existing open landscape of the Halawa Valley and for cohesive management of the valley's significant archeological resources, thereby increasing the potential for their long-term protection. There would be an increased potential for the expansion of traditional Hawaiian agricultural practices. Resource protection and management would be the responsibility of local residents, guided by the management entity through the implementation of a heritage management plan. Restoration of some of the irrigation terraces and ditches would likely take place allowing for more taro to be grown in the valley. The long-term protection of these resources under national heritage area designation would be no greater than under a local land trust. Like the trust, long-term resource protection of archeological resources would be dependent on valley residents sustaining their commitment.

National heritage area designation would have very little effect on controlling the spread of invasive alien plant species in the valley. Alien plants would continue to dominate valley vegetation. Only limited measures could be undertaken to re-establish the plant species found in the valley during prehistoric Hawaiian times and it would be unlikely even these limited measures could be sustained over a long period of time. Vegetation in the valley would continue to appear as it does at the present time.

Effects on Existing Land Uses, Land Ownership and the Local Economy. If a national heritage area were designated in the Halawa Valley, it would be difficult to predict the extent of changes in land use and patterns of ownership. Limits on the extent and kinds of changes would be spelled out in the heritage management plan developed for a potential national heritage area. It is likely that changes in land use would be minimal since the goal of a heritage area management plan would be to conserve resources. Lands would remain primarily in private ownership.

Designation of a national heritage area would likely bring some changes to the local economy in the form of additional local jobs. These jobs would probably be related to tourism as national heritage

area designation could work as an incentive to visitors coming to Molokai.

Quantity and Type of Visitor Use Opportunities. The extent to which visitor use opportunities would be expanded, if at all, would be spelled out in the management plan and would be left up to the local residents participating in the development of the heritage area management plan.

General and Comparative Consideration of Cost. There would no land acquisition costs connected with the designation of a national heritage area. Annual operating costs to operate the heritage area would be minimal.

Resource Improvement Potential. There would be some potential for improving the nationally significant archeological resources. Improvements in biotic resources in the form of restoring vegetation to its condition during prehistoric Hawaiian times would be very limited.

Alternative 5. Continuation of Existing Conditions

Long-Term Resource Protection. Under this alternative, there would be no efforts expended toward the development or implementation of a cohesive, systematic and long-term management strategy for the care and protection of the nationally significant Hawaiian archeological sites and features in the valley. Property owners would continue to individually and independently pursue their own plans. Resources would receive no protection over and above the present efforts of tenants, property owners and private non-profit organizations. There would be no guarantee that even these limited efforts would continue in the future.

Effects on Existing Land Uses, Land Ownership and the Local Economy. This alternative carries with it the greatest potential for land use changes occurring in the valley. There is every likelihood that changes in private landownership in the valley will occur in the future. These changes in ownership would bring with them the possibility of future major changes in land use, including non-traditional developments which could adversely affect the nationally significant archeological sites and features found in the valley.

Lands in the valley would continue to be in the Conservation District and land uses regulated by DLNR, but subject to changes based on the future requests for Conservation District Use Permits or requests for changes in classification by the Land Use Commission. There would be no benefits to the local and regional economy due to the creation of new jobs.

Quantity and Type of Visitor Use Opportunities. No changes would occur. Under this alternative, access to the upper valley and waterfalls would continue to be blocked by posted signs and padlocked gates. Visitors would not be able to enjoy, learn about and appreciate the significant Hawaiian archeological sites and features of the Halawa Valley unless they were willing to pay the required fee for a guided tour.

General and Comparative Consideration of Cost. No costs are connected with this alternative. No lands would be acquired, developed or operated by public entities.

Resource Improvement Potential. Very little potential exists for any improvements in resources. Any improvements would be up to the individual property owner, tenant or private non-profit trust.

FINDINGS

Study report findings are: (1) the resources of the Halawa Valley have archeological, historic, scientific, aesthetic and educational value; (2) the nationally significant prehistoric Hawaiian archeological resources of the Halawa Valley represent an irreplaceable public trust; (3) these resources should be afforded additional protection and that this protection should be long-term; (4) these resources should be made available for public enjoyment; and (5) traditional uses of these cultural resources by native Hawaiians is fitting and proper.

Based on the foregoing assessment of management alternatives, the study report also finds that the establishment of a national historical park in the Halawa Valley would be the most effective and efficient means to provide the needed long-term protection to the nationally significant cultural resources found there. Direct management by NPS is judged to be the superior alternative. Further, a national historical park, through the establishment of interpretive programs, would provide the greatest potential for visitors to be able to learn about and appreciate those facets of the ancient Hawaiian culture represented in the Halawa Valley.

The establishment of a national historical park would be the only alternative which would allow for the eventual restoration of the Halawa Valley's biotic resources to their condition during prehistoric Hawaiian times. Measures to achieve this long-term resource management goal would include the employment of vegetation management strategies leading to the reduction of invasive alien plants and the eventual re-establishment of native plant species and those plant species introduced by Polynesians. Measures would also be undertaken to control feral ungulates and other destructive alien animals now present in the valley.

The establishment of a national historical park would allow for the widespread restoration of the lo'i (irrigated terraces) and 'auwai (water ditches) in the valley for the purposes of growing kalo (taro) in the traditional Hawaiian manner. This restoration work would be carried out in consultation with and by knowledgeable native Hawaiians and local residents. As a national historical park, the

Halawa Valley would eventually take on more of the appearance of an ancient Hawaiian windward valley settlement.

Land ownership patterns would change if a national historical park were to be established in the Halawa Valley. Additional private lands would be acquired, but only on a willing seller basis. The per-acre cost to acquire these lands would be approximately the same as those for the other management alternatives. Private ownership of lands could continue within the national historical park. Visitor access would be restricted to those lands in public ownership.

Land use changes in the Halawa Valley would occur. The valley landscape would gradually and incrementally take on the appearance of an ancient Hawaiian windward valley settlement. Land would continue to be in open space. The reduction of alien plants in the valley would allow for widespread restoration of the ancient Hawaiian irrigation system and the traditional growing of taro. The existing homes in the valley would likely remain. No new roads would be built in the park. The existing access roadway would be retained. On lands acquired for the park, there would be some improvement of existing trails, but not at the expense of their historic integrity. Park facilities would be minimal and confined to the lower valley.

The establishment of a national historical park in the Halawa Valley would very likely bring more visitors to the island of Molokai and to its east end. Visitors to Halawa Valley would be day-use only. There would be some additional job opportunities for local residents directly related to the establishment of a national historical park and more local job opportunities indirectly related. The latter would consist of new jobs connected with the likely increases in tourism that the establishment of a new national historical park would bring to Molokai.

APPENDIX

Study Area - Ownership, Acreage and Assessed Valuation by Tax Map Key (TMK) Parcel

TMK PARCEL	OWNER	ACREAGE	LAND VALUE	BLDG VALUE
5-9-01-001	Puu O Hoku Ranch Ltd.	31.800	\$20,400	\$7,700
5-9-01-002	Puu O Hoku Ranch Ltd.	10.700	\$800	\$0.00
5-9-01-003	Roman Catholic Church, et al.	.160	\$6,400	\$0.00
5-9-01-004	Puu O Hoku Ranch Ltd.	2.100	\$200	\$0.00
5-9-01-005	Jerusalema Pomaikai Church	.130	\$5,200	\$4,000
5-9-01-006	Kaloheaulani, J.W.	.150	\$6,000	\$4,400
5-9-01-007	Hawaii Conference Foundation	.266	\$10,600	\$0.00
5-9-01-008	State of Hawaii	1.014	\$40,600	\$15,600
5-9-01-010	Richardson Family Trust	.640	\$200	\$0.00
5-9-01-011	Pauole, Luka, et al.	1.000	\$300	\$0.00
5-9-01-012	Borthwicke, Douglas F.	.310	\$100	\$0.00
5-9-01-013	Kawaa, Walter, et al.	.400	\$100	\$0.00
5-9-01-015	Borthwicke, Douglas F.	.310	\$12,400	\$0.00
5-9-01-016	Kawaa, Peter	1.540	\$61,600	\$0.00
5-9-01-017	Kaloheaulani, J.W.	1.480	\$59,200	\$5,200
5-9-01-018	Pruet, Claire W., et al.	.020	\$100	\$0.00
5-9-01-019	Pruet, Claire W., et al.	1.870	\$74,800	\$0.00
5-9-01-020	Puu O Hoku Ranch Ltd.	.400	\$100	\$0.00
5-9-01-021	Kikukawa, Herbert H./Ayako S.	1.500	\$400	\$0.00
5-9-01-022	Puu O Hoku Ranch Ltd.	.660	\$200	\$0.00
5-9-01-023	Pruet, Claire W., et al.	.800	\$300	\$0.00
5-9-01-025	Hawaii Conference Foundation	.734	\$29,400	\$2,900
5-9-02-001	Puu O Hoku Ranch Ltd.	31.810	\$3,500	\$0.00
5-9-02-003	Kawaa, Violet K., et al.	.160	\$100	\$0.00
5-9-02-004	Kawaa, Violet K., et al.	.730	\$200	\$0.00
5-9-02-005	Kaalouahi, L.K.	.800	\$20,100	\$0.00
5-9-02-006	Uahinui, Joseph K. Jr., et al.	2.750	\$900	\$0.00
5-9-02-007	Maui Open Space Trust	.330	\$100	\$0.00
5-9-02-008	Maui Open Space Trust	.450	\$200	\$0.00
5-9-02-009	Franson, Marie C., est.	1.310	\$400	\$0.00
5-9-02-010	Walts, James K. Jr.	.850	\$300	\$0.00
5-9-02-011	Kahalewai Robert K./Sarah K.	1.210	\$400	\$0.00
5-9-02-012	Gunderson, Anna K., et al.	.670	\$200	\$0.00

TMK PARCEL	OWNER	ACREAGE	LAND VALUE	BLDG VALUE
5-9-02-013	Magoon, John H. Sr. Tr., est.	.020	\$100	\$0.00
5-9-02-014	Rochlen, David Pua Jr.	.790	\$300	\$0.00
5-9-02-015	Kaahu, Kealoha, et al.	.330	\$100	\$0.00
5-9-02-016	Puu O Hoku Ranch Ltd.	.120	\$100	\$0.00
5-9-02-017	Whiton, James H., et al.	1.650	\$600	\$0.00
5-9-02-018	Dudoit, Ronnie Kamealoha	.507	\$200	\$0.00
5-9-02-019	Maui Open Space Trust	1.917	\$76,700	\$2,800
5-9-03-001	Kawaa Walter, et al.	.250	\$10,000	\$7,400
5-9-03-002	Puu O Hoku Ranch Ltd.	25.380	\$6,900	\$0.00
5-9-03-003	Rewick, Doris A., et al.	1.148	\$400	\$0.00
5-9-03-004	Thompson, Joyce Cynthia, et al.	1.447	\$500	\$0.00
5-9-03-005	Puu O Hoku Ranch Ltd.	.400	\$100	\$0.00
5-9-03-006	Dudoit, Ronnie Kamealoha	.500	\$200	\$0.00
5-9-03-007	Dudoit, Ronnie Kamealoha	.200	\$100	\$0.00
5-9-03-008	Wickman, Christopher M., et al.	.125	\$5,000	\$5,800
5-9-03-009	Franson, Isabella K.	1.130	\$400	\$0.00
5-9-03-010	Kawaa, Walter K., et al.	2.370	\$20,600	\$13,800
5-9-03-011	Mansfield Loren A. Foundation*	12.278	\$98,200	\$0.00
5-9-03-012	Sennet, Elizabeth K., et al.	3.000	\$80,300	\$0.00
5-9-03-013	Puu O Hoku Ranch Ltd.	1.200	\$400	\$0.00
5-9-03-014	Kawaa, Violet Kalaau, et al.	1.600	\$500	\$0.00
5-9-03-015	Whiton, Stephen H., et al.	.510	\$200	\$0.00
5-9-03-016	Severson, Ben	.900	\$300	\$0.00
5-9-03-017	Uahinui, Joseph K. Jr., et al.	.120	\$100	\$0.00
5-9-03-018	Naoiwi, Louisa K., et al.	.370	\$100	\$0.00
5-9-03-019	Maui Open Space Trust	.270	\$100	\$0.00
5-9-03-020	Maui Open Space Trust	.243	\$100	\$0.00
5-9-03-021	Kuahulu, David K., et al.	.230	\$100	\$0.00
5-9-03-022	Kaalimano, Lilia	.400	\$100	\$0.00
5-9-03-023	Maui Open Space Trust	.370	\$100	\$0.00
5-9-03-024	Nahoopii, Paahao	.310	\$100	\$0.00
5-9-03-025	Naoiwi, Louisa K., et al.	.490	\$200	\$0.00
5-9-03-026	Uahinui, Joseph K., et al.	.840	\$300	\$0.00
5-9-03-027	Edwards, Lionel et al.	.190	\$100	\$0.00
5-9-03-028	Hobbs, Abraham (dec'd.), et al.	.900	\$300	\$0.00
5-9-03-029	Anderson, Lilyan Y.K.	.630	\$200	\$0.00
5-9-03-030	Kamakahi, George N. Trust	1.881	\$600	\$0.00
5-9-03-031	Puu O Hoku Ranch Ltd.	.100	\$100	\$0.00
5-9-03-032	Kamakahi, George N. Tr., et al.	.390	\$100	\$0.00
5-9-03-033	Nahoopii, Paahao	.220	\$100	\$0.00

TMK PARCEL	OWNER	ACREAGE	LAND VALUE	BLDG VALUE
5-9-04-001	Puu O Hoku Ranch	23.500	\$1,500	\$0.00
5-9-04-002	Akina, David K. II	.290	\$100	\$0.00
5-9-04-003	Fuller, Solomon Estate, et al.	1.700	\$200	\$0.00
5-9-04-004	Puu O Hoku Ranch	.300	\$100	\$0.00
5-9-04-005	Kawaa, Violet K., et al.	.680	\$100	\$0.00
5-9-04-006	Akina, David K. II	.680	\$100	\$0.00
5-9-04-007	Puu O Hoku Ranch Ltd.	2.420	\$300	\$0.00
5-9-04-009	Edwards, Lionel, et al.	1.720	\$200	\$0.00
5-9-04-010	unknown, et al.	1.480	\$200	\$0.00
5-9-04-011	Akina, David K. II	3.500	\$400	\$0.00
5-9-04-012	Akina, David K. II	.570	\$100	\$0.00
5-9-04-013	Akina, David K. II	1.120	\$100	\$0.00
5-9-06-001	Puu O Hoku Ranch Ltd.**	8422.620	\$59600	\$0.00

*approximately 8 acres of this parcel are located within the study area. Assessed valuation for the 8 acres has been prorated to be \$66,000.

**approximately 300 acres of this parcel are located within the study area. Assessed valuation for the 300 acres has been prorated to be \$4,600.

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In addition to the above references, this study of alternatives was based on the following CD-ROM GIS databases:

Digital Elevation Model (DEM), B/W Hillshade U7M/Z4, Digital Raster Graphic (DRG) 10m digital images of USGS quad maps. U.S. Geological Survey, Department of the Interior. 1997.

Digital Orthophoto Quadrangle (DOQ) Data, Island of Molokai, Volume 1. IDP-ASC-96E. U.S. Geological Survey, Department of the Interior. 1999.

Hawaii Outer Islands Tax Map Key (TMK) Database. 1997.

Biological Conservation Database (BCD). Rare, threatened and endangered species and natural community records from the BCD and "subregion" coverages. Hawaii Natural Heritage Program, The Nature Conservancy of Hawaii. 1998.

Hawaii National Parks GIS Database. 1999.

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Site Investigation Trip Report

An on-site inspection of the study area was attempted on September 21, 1999 by Pacific Islands Support Office Superintendent Bryan Harry and Park Planner Gary Barbano. Neither had been to the Halawa Valley in 20 years. An overall impression of the valley, gained from a distance on the access roadway, was that the forest vegetation was considerably more widespread as compared with 20 years ago. The vegetative cover appeared to be composed primarily of alien species. From the overlook, only a couple of small plots of taro could be seen in cleared areas next to what appeared to be residences. In all, about a dozen residences were spotted in different locations in the lower valley. These appeared to be permanent structures and some had small plots of cultivated land next to them. Non-permanent structures were also seen near the coast on the northern side of the stream.

The paved road ended just beyond Halawa Park, a state-owned, county-operated public facility. The one-acre park consisted of a grassy area, picnic tables, rest rooms and a small parking area. Access to parking was blocked by a county maintenance truck. County maintenance workers were observed next to the rest rooms. When queried as to where to park our rental vehicle, the response was that lands in the valley were all private property, but that it would be OK to park in the grassy area beyond the paved road.

Across from the county park an unpaved road led off toward the Halawa Stream. A chain had been placed across the road and it was posted with a "No Trespassing" sign. Back along the paved road above the park, another unpaved road branched off and was signed "Private Property No Trespassing." A third dirt road, this one leading up the valley toward the falls, was gated, padlocked and signed "Private Property." No attempts were made to walk beyond any of these barriers.

During the approximately one hour stay, more than a dozen rental cars were observed driving down the access roadway and parking in the grassy area beyond the county park. Some visitors got out of their cars and walked the beach area south of the stream mouth. No one attempted to cross the stream.

Due to the physical barriers encountered, except for the coastal portion on the southern side of the stream mouth, none of the study area was inspected on-site.

On March 7, 2000, Bryan Harry, Pacific Islands Support Office Superintendent and Gary Barbano, Pacific Islands Support Office Planner were invited by Mahealani Kathy Davis, Halawa Valley taro farmer, to join her, Jack Spruance, manager of the Puu O Hoku Ranch, and East Molokai resident Eddie Tanaka for a tour of the Halawa Valley. Leaving their vehicles, the group walked up the valley via the trail going up the north side of the Halawa Stream. Several residences and small cleared

plots were visible near the trail at the lower end of the valley. Further up the valley, the floor and lower slopes are covered in trees. The remains of lo`i and `auwai were occasionally glimpsed through the vegetation. A surface pipeline paralleled the trail, running water down to the taro patch planted and maintained by Kathy and Glenn Davis in the lower valley.

At the upper end of the valley, but below the waterfalls, the remains of several lo`i, the irrigated terraces for growing taro, were clearly visible as were the `auwai, the rock-lined ditches that bring water from the stream to the lo`i. Kathy pointed out a small patch of taro being irrigated by water flowing through the `auwai. This appeared to be the only place in the upper valley where taro was actively being farmed.

The return walk took place on the trail running along and above the south side of the Halawa Stream. Maui County has run a pipeline from the stream to bring water down to the county park. This trail and the one on the other side of the stream are apparently old Hawaiian trails used for centuries to gain access to the lo`i and `auwai in the middle and upper valley.

Except for the lower end near the coast, the entire Halawa Valley is overrun with alien vegetation. The lo`i and `auwai have been covered over with vegetation and in places are being damaged by the expanding roots of trees. Except for small scattered patches, mostly at the lower end of the valley, no taro is being grown in the valley.

During the return trip to the lower valley, the same "No Trespassing" and "Private Property" signs and padlocked gates were encountered as during the September 21 visit. Several residences were sighted next to the trail, but none appeared to be occupied. According to Kathy, six permanent residents live on the south side of the stream and two on the north side.